

I claim:

The Claims

- 5 1. A drug delivery member for applying medication to internal human tissue, comprising:
a) a medication impermeable barrier shaped to conform to a contour of the internal tissue;
b) a medication carrying matrix disposed on the barrier, the matrix being adapted to adhere
to the internal human tissue and release the medication to the human tissue upon being applied to
the internal human tissue.
- 10 2. The drug delivery member of claim 1, further comprising a medication-free deposit of
matrix in a region near an edge of the barrier that inhibits migration of the medication past the edge
of the barrier.
- 15 3. The drug delivery member of claim 1, wherein the barrier is formed from a pliable material
that conforms to a surface of the internal human tissue.
4. The drug delivery member of claim 1, wherein the barrier is formed with an inner surface
that corresponds to an outer surface of a cervix.
- 20 5. The drug delivery member of claim 1, wherein the barrier includes a cap portion that is
configured to fit over an outer periphery of a cervix and includes a projection radially inward of the
cap portion that is configured to extend into the cervical canal.
- 25 6. The drug delivery member of claim 5, wherein the projection is sized to extend past a
squamo-columnar epithelial junction.
7. The drug delivery member of claim 6 wherein the medication is dispersed in the matrix such
that the medication is concentrated in an area surrounding the squamo-columnar epithelial junction
30 when the drug delivery member is applied to a cervix.
8. The drug delivery member of claim 1 wherein the medication is a drug selected from the
group consisting of : 5-fluorouracil, cis-platinum, trans-retinoic acid, 4-hydroxyphenylretinamide,

Imiquimod, betacarotene, dihematoporphyrin ether, cidofovir (Vistide), 5-aminolevulinic acid, recombinant human beta interferons, alpha-difluoromethylornithine, ifosfamide, leucovorin, idoxuridine and acrarubicin, or subcombinations thereof.

5 9. The drug delivery member of claim 1, wherein the medication is 5-fluorouracil or cis-platinum.

10. The drug delivery member of claim 1, wherein the matrix is a synthetic carboxy polymer, a natural carboxy polymer, or carboxy co-polymers whose fluidity is pH dependent.

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11. The drug delivery member of claim 1, further comprising a string attached to the barrier for removing the drug delivery member.

12. The drug delivery member of claim 1, further comprising a retainer for securing the drug
15 delivery member to the internal tissue.

13. The drug delivery member of claim 1, wherein the barrier dissolves after the medication is transferred from the matrix to the internal tissue.

20 14. A method for inserting a drug delivery member onto the cervix of a patient comprising the steps of: mounting a drug delivery member onto an applicator; inserting the applicator near the cervix of said patient; and releasing said drug delivery member from said applicator onto the cervix of the patient.

25 15. The method of claim 14, further comprising the step of inflating a portion of said applicator.

16. The method of claim 14, wherein mounting the drug delivery member on the applicator comprises retaining an elastic band of said drug delivery member on the applicator.

30 17. The method of claim 14, wherein said drug delivery member further comprises a drug selected from the group consisting of: 5-fluorouracil, cis-platinum, trans-retinoic acid, 4-hydroxyphenylretinamide, Imiquimod, betacarotene, dihematoporphyrin ether, cidofovir (Vistide),

5-aminolevulinic acid, recombinant human beta interferons, alpha-difluoromethylornithine, ifosfamide, leucovorin, idoxuridine and acrarubicin, or subcombinations thereof.

5 18. The method of claim 14, wherein a first portion of the drug delivery member is placed over an outer periphery of a cervix and a second portion of the drug delivery member is inserted into the cervical canal.

19. The method of claim 18, wherein the second portion is inserted past a squamo-columnar epithelial junction.

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20. The method of claim 19, wherein the medication is applied to the drug delivery member such that the medication is concentrated in an area surrounding the squamo-columnar epithelial junction when the drug delivery member is applied to a cervix.

15 21. A method for treating cervical intraepithelial neoplasia comprising the steps of: mounting a drug delivery drug delivery member containing a drug selected from the group consisting essentially of : 5-fluorouracil, cis-platinum, trans-retinoic acid, 4-hydroxyphenylretinamide, Imiquimod, betacarotene, dihematoporphyrin ether, cidofovir (Vistide), 5-aminolevulinic acid, recombinant human beta interferons, alpha-difluoromethylornithine, ifosfamide, leucovorin,
20 idoxuridine and acrarubicin, and subcombinations thereof onto an applicator; inserting the applicator near the cervix of said patient; and releasing said drug delivery member from said applicator onto the cervix of the patient.

22. The method of claim 21, further comprising the step of inflating a portion of said applicator.

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23. The method of claim 21, further comprising the step of retaining said drug delivery member onto said applicator prior to insertion onto the cervix of the patient.

24. The method of claim 21, wherein a first portion of the drug delivery member is placed over
30 an outer periphery of a cervix and a second portion of the drug delivery member is inserted into the cervical canal.

25. The method of claim 24, wherein the second portion is inserted past a squamo-columnar epithelial junction.

26. The method of claim 25, wherein the medication is applied to the drug delivery member such that the medication is concentrated in an area surrounding the squamo-columnar epithelial junction when the drug delivery member is applied to a cervix.

27. A drug delivery member for administering medication to the cervix of a patient, comprising:

a) a medication impermeable barrier including a cap that is configured to fit over an outer periphery of the cervix and a projection radially inward of the cap portion that is configured to extend into a cervical canal;

b) a medication carrying matrix disposed on the barrier that releases the medication to the cervix when the barrier is secured on the cervix;

c) a retainer that secures the barrier to the cervix, such that the cap is maintained on the outer periphery of the cervix and the projection is maintained in the cervical canal.

28. The drug delivery member of claim 27, wherein the retainer applies pressure to an outer circumferential surface of the cervix and the cervical canal to secure the barrier to the cervix.

29. The drug delivery member of claim 27, wherein the retainer comprises one or more ribs that apply pressure of an outer circumferential surface of the cervix and the cervical canal to secure the barrier to the cervix.

30. The drug delivery member of claim 27, wherein the retainer comprises an elastic band secured to the cap and a ring secured to the projection that expands upon insertion.

31. The drug delivery member of claim 27, further comprising a medication-free deposit of matrix in a region near an edge of the barrier such that the medication free deposit inhibits migration of the medication past the edge of the barrier.

32. The drug delivery member of claim 27, wherein the projection is sized to extend past a squamo-columnar epithelial junction.

33. The drug delivery member of claim 32, wherein the medication is dispersed in the matrix such that the medication is concentrated in an area surrounding the squamo-columnar epithelial junction when the drug delivery member is applied to a cervix.

5 34. The drug delivery member of claim 27, wherein the medication is a drug selected from the group consisting of : 5-fluorouracil, cis-platinum, trans-retinoic acid, 4-hydroxyphenylretinamide, Imiquimod, betacarotene, dihematoporphyrin ether, cidofovir (Vistide), 5-aminolevulinic acid, recombinant human beta interferons, alpha-difluoromethylornithine, ifosfamide, leucovorin, idoxuridine and acrarubicin, and subcombinations thereof.

10 35. The drug delivery member of claim 27, wherein the matrix is a synthetic carboxy polymer, a natural carboxy polymer, or carboxy co-polymers whose fluidity is pH dependent.

36. A drug delivery member for administering therapeutic agents to the cervix of a patient, the
15 drug delivery member comprising:

a) a tubular member having a first opening and a second opening, wherein the first opening is larger than the second opening; said tubular member being formed of a flexible material containing a therapeutic agent; and

20 b) one or more ribs connected to the tubular member, said ribs being selectively deformable between a first state where the ribs allow the tubular member to be placed over the cervix and a second state where the ribs secure the tubular member to the cervix.

37. The drug delivery member of claim 36, wherein the one or more ribs are comprised of a shape memory alloy.

25 38. The drug delivery member of claim 36, wherein the tubular member is comprised of a bioadhesive material.

39. The drug delivery member of claim 38, wherein the bioadhesive material is a synthetic
30 carboxy polymer, a natural carboxy polymer, or carboxy co-polymers whose fluidity is pH dependent.

40. The drug delivery member of claim 36, wherein the tubular member is comprised of a bioadhesive material selected from the group consisting of: carbopol 934, pectin, polyvinylpyrrolidon, guar gum, ethylene maleic anhydride resins and mixtures thereof.

5 41. The drug delivery member of claim 36, wherein the rib is comprised of a nickel titanium alloy.

42. The drug delivery member of claim 36, wherein the therapeutic agent is selected from the group consisting of: 5-fluorouracil, cis-platinum, trans-retinoic acid, 4-hydroxyphenylretinamide, 10 Imiquimod, betacarotene, dihematoporphyrin ether, cidofovir (Vistide), 5-aminolevulinic acid, recombinant human beta interferons, alpha-difluoromethylornithine, ifosfamide, leucovorin, idoxuridine and acrarubicin, and subcombinations thereof.